

09/807580

Date: April 13, 2001

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**TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 USC 371**

International Application No.: PCT/NL99/00583 ✓
International Filing Date: September 21, 1999 ✓
Priority Date Claimed: October 14, 1998 ✓
Title of Invention: SORTING/STORAGE DEVICE FOR WAFERS AND METHOD FOR
HANDLING THEREOF ✓
Applicant(s) for DO/EO/US: Albert Hasper, Sebastiaan Eliza Nooten, Menso Hendriks ✓

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. (X) This is a **FIRST** submission of items concerning a filing under 35 USC 371.
2. () This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 USC 371.
3. (X) This express request to begin national examination procedures (35 USC 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 USC 371(b) and PCT Articles 22 and 39(1).
4. (X) A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. (X) A copy of the International Application as filed (35 USC 371(c)(2))
 - a) () is transmitted herewith (required only if not transmitted by the International Bureau).
 - b) (X) has been transmitted by the International Bureau.
 - c) () is not required, as the application was filed in the United States Receiving Office (RO/US).
6. () A translation of the International Application into English (35 USC 371(c)(2)).
7. (X) Amendments to the claims of the International Application under PCT Article 19 (35 USC 371(c)(3))
 - a) () are transmitted herewith (required only if not transmitted by the International Bureau).
 - b) () have been transmitted by the International Bureau.
 - c) () have not been made; however, the time limit for making such amendments has NOT expired.
 - d) (X) have not been made and will not be made.
8. () A translation of the amendments to the claims under PCT Article 19 (35 USC 371(c)(3)).
9. (X) An oath or declaration of the inventor(s) (35 USC 371(c)(4)).
10. (X) A copy of the International Preliminary Examination Report with any annexes thereto, such as any amendments made under PCT Article 34.
11. () A translation of the annexes, such as any amendments made under PCT Article 34, to the International Preliminary Examination Report under PCT Article 36 (35 USC 371(c)(5)).

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Items 11. to 16. below concern other document(s) or information included:

12. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
13. ☒ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
14. ☒ A FIRST preliminary amendment.
☐ A SECOND or SUBSEQUENT preliminary amendment.
15. ☐ A substitute specification.
16. ☐ A power of attorney and/or address letter.
17. ☒ International Application as published.
18. ☐ Small Entity Statement.
19. ☐ PCT Form PCT/IPEA/402.
20. ☐ PCT Form PCT/IB/308.
21. ☐ PCT request form.
22. ☒ International Search Report.
23. ☒ Three (3) sheets of drawings
24. ☒ A return prepaid postcard.
25. ☒ The following fees are submitted:

09/807580

U.S. Application No.

International Application No.
PCT/NL99/00583

Attorney Docket No.

NEDER24.001APC

Date: April 13, 2001

JC03 Rec'd PCT/PAJ

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				FEES
BASIC FEE				\$860
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	
Total Claims	7 - 20 =	0 ×	\$18	\$0
Independent Claims	2 - 3 =	0 ×	\$80	\$0
Multiple dependent claims(s) (if applicable)			\$270	\$0
TOTAL OF ABOVE CALCULATIONS				\$860
Reduction by 1/2 for filing by small entity (if applicable). Verified Small Entity \$ statement must also be filed. (NOTE 37 CFR 1.9, 1.27, 1.28)				
TOTAL NATIONAL FEE				\$860
TOTAL FEES ENCLOSED				\$860
amount to be refunded:				\$
amount to be charged:				\$

26. (X) A check in the amount of \$860 to cover the above fees is enclosed.
27. (X) Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40 per property.
28. (X) The Commissioner is hereby authorized to charge only those additional fees which may be required, now or in the future, to avoid abandonment of the application, or credit any overpayment to Deposit Account No. 11-1410.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

KNOBBE, MARTENS, OLSON & BEAR, LLP
620 Newport Center Drive
Sixteenth Floor
Newport Beach, CA 92660

Signature

Michael H. Trenholm
Printed Name

37,743

Registration Number

NEDER24.001APC

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Haspar, et al

) Group Art Unit Unknown

PCT Appl. No.: PCT/NL99/00583

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Filed : Herewith

I hereby certify that this correspondence and all marked attachments are being deposited with the United States Postal Service as first-class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231, on

For : SORTING/STORAGE DEVICE
FOR WAFERS AND METHOD
FOR HANDLING THEREOF

April 13, 2001

(Date)

Michael H. Tenholm, Reg. No. 37,743

Examiner : Unknown

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

Prior to examination of the above-captioned application, please amend the application as follows:

IN THE SPECIFICATION:

Page 1 line 2, between "thereof." and "The" please insert --Background of the Invention
Field of the Invention--.

Page 1 line 6, before "Such" please insert --Description of the Related Art--.

Page 2 (Amended) line 11, before "The" insert --Summary of the Invention--.

Page 3 line 21, before "Figs." insert --Brief Description of the Drawings--.

Page 3 line 27, before "In", insert Detailed Description of the Preferred Embodiment--.

Page 8 (Amended) line 1, delete "Claims" and replace with --WHAT IS CLAIMED IS--.

IN THE CLAIMS:

Please cancel Claims 1-7 without prejudice.

Please add the following new Claims.

8. (New) A device for sorting wafers stored in cassettes comprising:
a housing;
a part for receiving at least two cassettes arranged in the housing;
a wafer-handling device in communication with the wafers;
a store for cassettes arranged in the housing; and
a cassette/handling device arranged in the housing wherein the wafer-handling device is adapted to move the wafers into and out of a first of the cassettes from and to a second of the cassettes and wherein the store for cassettes and the cassette/handling device are separated from the part for receiving at least two cassettes.
9. (New) The device of Claim 8, wherein the wafer-handling device is arranged in a chamber which can be sealed off with respect to the housing.
10. (New) The device of Claim 9, wherein the chamber comprises a measuring station functionally connected with the wafer-handling device.
11. (New) The device of Claim 8, wherein the part for receiving at least two cassettes comprises a turntable.
12. (New) The device of Claim 8, wherein the store for cassettes comprises a rotatable magazine.
13. (New) A method for assembling a batch of wafers in cassettes comprising the steps of:
placing at least a first and a second cassettes in active connection with a wafer-handling devices wherein the cassettes are positioned within a store;
employing a cassette/handling device to select and move the first cassette from the store to a sorting operation;
employing a cassette/handling device to select and move the second cassette from the store to the sorting operation independently from the first cassette; and
employing the wafer-handling device to sort the wafers by transferring wafers between the first cassette and second cassettes.
14. (New) The method of Claim 13, further comprising the step of testing the wafers during sorting the wafers.

PCT Appl. No. : PCT/NL99/00583
Filed : Herewith

Remarks

The above amendments are being made to bring the above referenced application into better conformance with United States practice and does not constitute the addition of new matter. The entrance of this amendment is respectfully requested.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: _____

4/13/01

By: _____

Michael H. Trenholm
Registration No. 37,743
Attorney of Record
620 Newport Center Drive
Sixteenth Floor
Newport Beach, CA 92660

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Sorting/storage device for wafers and method for handling thereof.

The present invention relates to a device for sorting wafers, according to the preamble of claim 1.

5 Such a sorting device is generally known in the prior art. If wafers are being treated batchwise, it is customary to include test wafers in a batch as well as end wafers wherein because they are used as "fill" in the batch, the quality of treatment of these wafers is lower due to the position in the treatment device, and these wafers cannot be used further, or can only be used further after they have been treated. If a batch of wafers
10 comprises, for example, 100 wafers, they are fed in a number of cassettes to the appropriate treatment device, such as a furnace. Normally, such cassettes contain approximately twenty-five wafers, so that in such a case approximately four wafer cassettes are fed to the furnace. A number of these cassettes are filled only with "product" wafers. Moreover, a number of cassettes contain test wafers and the end wafers described
15 above.

In addition to the sorting device, there are normally a separate storage device for cassettes and one or more separate measuring stations for carrying out measurements. This means that in the prior art three or more separate housings are present, each separately provided with a (wafer- or cassette-)handling device and a particle-free
20 environment.

The wafers are handled in the sorting device and in the measuring stations in a particularly particle-free environment. Higher demands are placed on this environment than on a clean room in which wafers are transported in closed pods. From the moment at which the transport pod is opened and the cassette containing wafers is removed
25 therefrom until the moment at which the cassette containing wafers is placed back in the transport pod and the transport pod is closed, this particularly particle-free environment has to be maintained. By providing the pod around the wafer cassette with a standardized door (SMIF, FOUP) and placing the cassette with this door against a wall of the sorting device with a closable opening and simultaneously opening cassette door and wall
30 opening, it is possible to achieve a highly effective separation between clean room and wafer-sorting chamber. As a result, the demands which are imposed on the clean room can be of a low level, with a corresponding saving in the costs, while in the limited volume of the sorting device itself it is possible to maintain an environment which

satisfies the most stringent of materials requirements. It is also possible to provide the environment of the sorting device with an inert gas, such as nitrogen. The same applies to the measuring station. There too, the wafers are handled in a particularly particle-free environment. Each sorting station and each measuring station must be provided with a lock mechanism. The storage of wafers in the closed cassettes can take place under less stringent clean-room conditions.

US-4.776.744, from which the preamble of claim 1 is known, discloses a device for sorting wafers. A turn-table is present, having several blades on which an indexer is provided for holding and moving two cassettes. The blades can be moved below a wafer gripper for removal and introduction of wafers out and in the cassettes.

The object of the present invention is to provide a sorting/storage/measuring device which is easier and less expensive to produce and in which, moreover, the surface area required for the device can be limited without, however, reducing the throughput capacity. In addition, the flexibility is to be enhanced. The device as described above having the characterising features of claim 1. As a result, the sorting options are considerably increased, due to the fact that all the cassettes in the storage device are available to the sorting device. In addition, the necessary measurements can also be carried out during sorting without the need for transportation to a separate measuring station. Consequently, the number of handling operations decreases and the capacity of the device can be increased while reducing the surface area required. If the wafers are supplied and stored in cassettes in pods provided with a standard door (SMIF, FOUP), fewer lock mechanisms are required than with the three or more separate housings according to the prior art. If certain types of wafer are always present in a specific cassette, it is possible, by changing cassettes of this nature into a different cassette which is present in the sorting device, to assemble a batch as desired. Naturally, it is also possible to arrange different types of wafers in a storage cassette, so that exchange in the sorting device is less frequent.

It is possible for the sorting device to deal with more than two cassettes at a time.

According to an advantageous embodiment of the invention, the chamber in which the sorting is carried out comprises a measuring station or a measuring station is arranged in functional relationship with the wafer handling device. Preferably this

- 2a -

measuring station is provided in the space wherein sorting is realised or a measuring station is provided adjacent thereto. Such a measuring station may, for example, be designed to test layer thicknesses of the treated wafers, to measure the amount of

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undesirable foreign particles which are present on/in the wafers and the like.

The cassette-handling device is able to move the cassettes from the insertion position to the store or to a turntable. The turntable moves the cassette into the correct position for the lock mechanism via which the cassette is placed in active connection
5 with the wafer-handling robot.

The store for cassettes may comprise any structure which is known in the prior art, such as a rotatable magazine.

The invention also relates to a method for assembling a (part of a) batch of wafers which is to be fed to a treatment device for wafers, comprising placing at least
10 two cassettes containing wafers in active connection with a wafer-handling device and using the said wafer-handling device to carry out a sorting operation by moving wafers from one cassette to the other and vice versa. According to the invention, this method is characterized in that at least one of the said cassettes is from a cassette store, the said cassettes being moved from the said store to the sorting station in a housing.

15 According to an advantageous embodiment of this method, the wafer is subjected to a measurement during the sorting operation. "During" is also understood to encompass immediately before or immediately after the sorting operation.

The invention will be explained in more detail below with reference to a structure according to the prior art and an exemplary embodiment according to the
20 invention. In the drawing:

Figs. 1a-c very diagrammatically show a number of devices according to the prior art;

Fig. 2 shows a diagrammatic, perspective view of a sorting/storage device according to the invention; and

25 Fig. 3 shows a plan view of the various parts of this device according to the invention.

In Fig. 1a, 40 denotes a sorting device which comprises a part (depicted highly diagrammatically) in which the cassettes 12 and 13 are arranged and a device for handling wafers which is denoted by a circle 41. Using this device, wafers, for example,
30 are removed from cassette 12 and placed in cassette 13 in any desired order.

Fig. 1b shows a storage device 42. A store is denoted by 43 and a cassette-handling robot is denoted by 45. Using cassette-handling robot, cassettes 12, 13 are moved from the insertion position into store 43.

Fig. 1c shows a measuring station 44 with a diagrammatically depicted measuring cell 45. Wafers from the cassette 12 are subjected to a specific measurement in measuring cell 16.

To carry out a treatment in, for example, a furnace, such as a deposition process on a wafer, firstly, if required, measurements are carried out on test wafers in one or more measuring stations 44, for example the number of dust particles present before the treatment is measured. Then, a batch is assembled in device 40. Cassettes 12 containing different wafers which are required for this purpose come from store 42. After the appropriate treatment has been carried out, the wafers are sorted again in station 40 and are stored in station 42. The test wafers are measured in one or more measuring stations 44.

Transport between the various stations takes place in the cassettes 12, 13 and is taken care of by various operators or by a cassette-transporting system.

Figs. 2 and 3 show the single device according to the present invention which combines the above devices and considerably simplifies the complicated operations while allowing more efficient handling of the wafers on a much smaller surface area.

In these Figures 2, 3, a sorting/storage device according to the present invention is denoted by 1. This device is arranged in a housing 2. This housing 2 is preferably itself placed in a chamber which is not shown, such as a clean room.

As can be seen from Figs. 2 and 3, the housing is provided with a partition 4. Partition 4 provides a separation between chamber 23 and chamber 22. A cassette-handling device 25 such as a robot, and a magazine 8 for cassettes are situated in chamber 23. Communication with chamber 22 is realized via closable opening 37 which is designed in such a manner that, when cassette 18 is placed against it, both this cassette and the said opening 37 are opened. Consequently, it is possible for the wafer-handling device or wafer robot 24 arranged in chamber 22 to collect wafers from the cassette in question or to position them therein. This wafer-handling robot 24 is able to move both in the horizontal plane and in the vertical plane and is controlled by control unit 20. Any desired gas atmosphere can be maintained within a chamber 22, for example a pure nitrogen atmosphere, in order to avoid any action on the wafers, and the number of particles can be reduced still further.

Moreover, one or more measuring stations are situated adjacent to chamber

22. Each measuring station is able to determine one or more different parameters, such as the layer thickness of material which has been deposited on the wafer, the chemical and/or physical state of this material, the number of dust particles on the wafer and the like. As can be seen from Fig. 3, measuring stations may be placed in active connection
 5 with the wafer-handling robot at a number of positions. Moreover, it can be seen from Fig. 2 that if the height of the measuring stations is limited, two or more measuring stations can be placed above one another within the reach of the wafer-handling robot.

These cassettes 18 are arranged on a turntable 30. Using cassette-handling device 25, cassettes can be moved from this turntable 30 to store 8. This cassette-
 10 handling robot 25 comprises a jointed arm 31 and a height-adjustment mechanism 35. Store 8 comprises a rotatable, cylindrical magazine provided with receptacles 26, at different levels 27, which receive cassettes 17. Cassettes 12, 13, 17 and 18 are, of course, identical. Store 8 is of rotatable design. As a result, and because the cassette robot 25 is vertically adjustable, any cassette can be moved from the store onto the turntable 30
 15 which is designed with two recesses. It will be understood that table 30 may have a greater number of levels.

On entry, the cassettes 12 and 13 are moved into the insertion/removal position 33. As diagrammatically indicated in Fig. 3, it is possible, from this position, for example to place cassette 13 in store 8 or to transfer it directly to turntable 30.

20 When using so-called FOUPs, i.e. cassettes which normally close off their contents and are opened only on contact with partition 4, chamber 23 may have the same atmosphere as the surroundings, for example clean-room conditions, and does not have to satisfy the higher demands imposed when sorting the wafers for particle concentration and the like.

25 The device described above functions as follows. If, for example, cassette 13 which is empty is to be provided with a specific sequence of different types of wafers for treatment in, for example, a furnace, it is placed on turntable 30 using cassette-handling robot 25. Following rotation of turntable 30, cassette 13 is situated in the position of cassette 18. It is then opened. Before this, after this or simultaneously, it is ensured that a
 30 cassette containing at least one desired wafer is situated at a different level of turntable 30. For this purpose, the top part of turntable 30 can move independently from bottom part of turntable 30. Rotation of turntable 30, like the movement of the sorting device 24, store 8 and cassette-handling device 25, is controlled by control unit 20. Then, the desired

wafer is placed in cassette 18 with the aid of wafer-handling device 24. If other wafers are required and are not present in the stock cassette used, this stock cassette is exchanged for another which may come from store 8. In this way, a desired batch is assembled in cassette 18 and is removed again using cassette-handling device 25.

5 After the treatment has finished, the cassette in question can be placed back on turntable 30 via handling device 25 and a wafer can be fed to either the top or the bottom measuring station 16 with the aid of wafer-handling device 24. In addition to a measuring station, there may also be a station for reading the wafer identification code and one for the wafer orientation. Various types of measurements on various types of test
10 wafers or various types of measurements on the same test wafer are possible.

 The present invention considerably limits the logistics of the test wafers, since they no longer have to move along the various measuring stations and the storage/sorting device is multifunctional. In addition to advantages in the area of the housing and the atmosphere present therein, it is also possible to simplify automation,
15 since the number of wafer-/cassette-handling robots can be limited, as can their expensive control unit 20.

 Although the invention is described above with reference to a preferred embodiment, it will be understood that numerous amendments can be made to this without departing from the scope of the present claims. For example, it is possible for the
20 storage device to be designed in any other way which is known from the prior art. Moreover, there may be devices for determining the position of the wafer on the wafer-handling robot.

Claims

1. Device (1) for sorting wafers which are stored in cassettes, comprising a part for receiving at least two cassettes (18, 19) and a wafer-handling device (24), the part for receiving said cassettes being arranged in a housing (2), in which a store (8) for cassettes and a cassette/handling device (25) are arranged, characterised in that, said wafer/handling device is provided for moving the wafers into and out of the cassette from and to the other cassette, and in that such store for cassette and said cassette/handling device are separated from said part for receiving cassettes.
2. Sorting device according to Claim 1, in which the said wafer-handling device (24) is arranged in a chamber (22) which can be sealed off with respect to the said housing (2).
3. Sorting device according to one of the preceding claims, in which said chamber (22) comprises a measuring station (16) functionally connected with said wafer handling device.
4. Sorting device according to one of the preceding claims, in which the part for receiving at least two cassettes comprises a turntable (30).
5. Sorting device according to one of the preceding claims, in which the said store (8) for cassettes comprises a rotatable magazine.
6. Method for assembling a batch of wafers in cassettes comprising placing at least two cassettes in active connection with a wafer handling device, said wafer handling device being used to carry out a sorting operation by transferring wafers from one cassette to the other, wherein said cassettes are from a store, and move from said store to said sorting operation by cassette handling device wherein a first cassette in the store is selected, and moved from the store to the sorting operation by said cassette handling device and a second cassette in the store is selected, and moved from the store to the sorting operation by said cassette handling device, characterised in that said first and second cassettes are moved independently from each other to said sorting operation from said store.

fig-1a

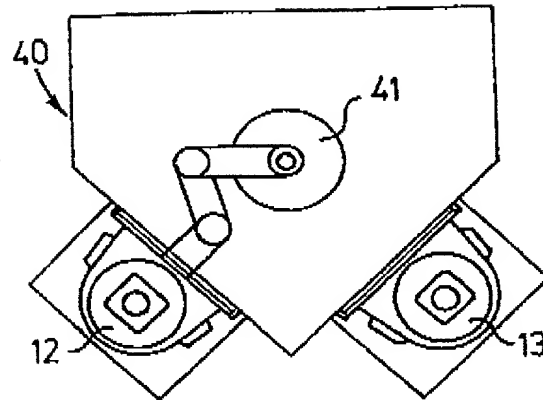


fig-1b

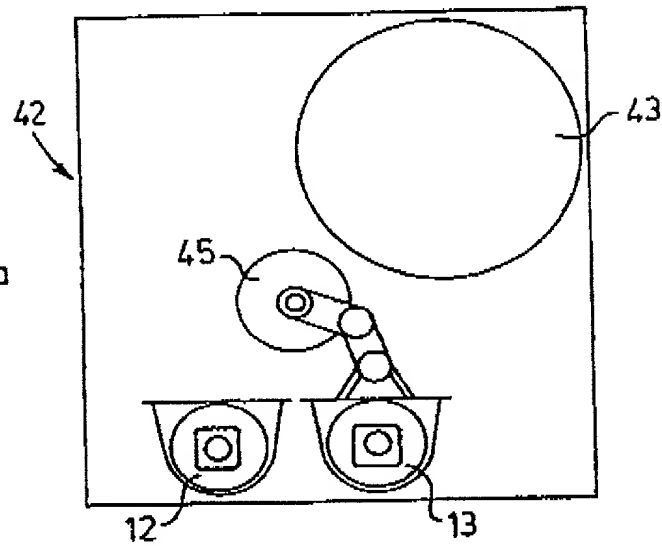


fig-1c

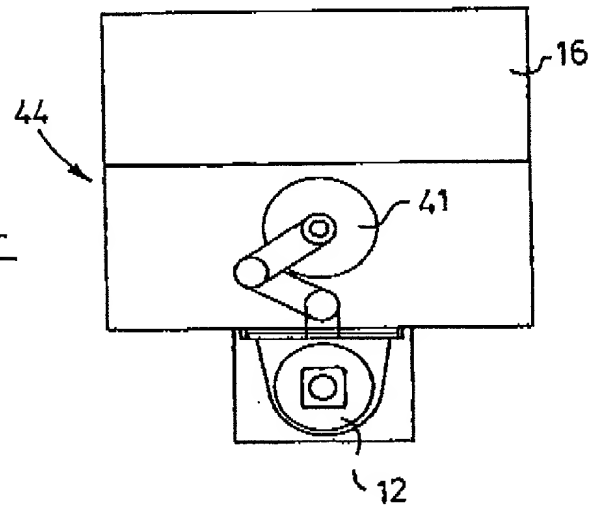


fig-2

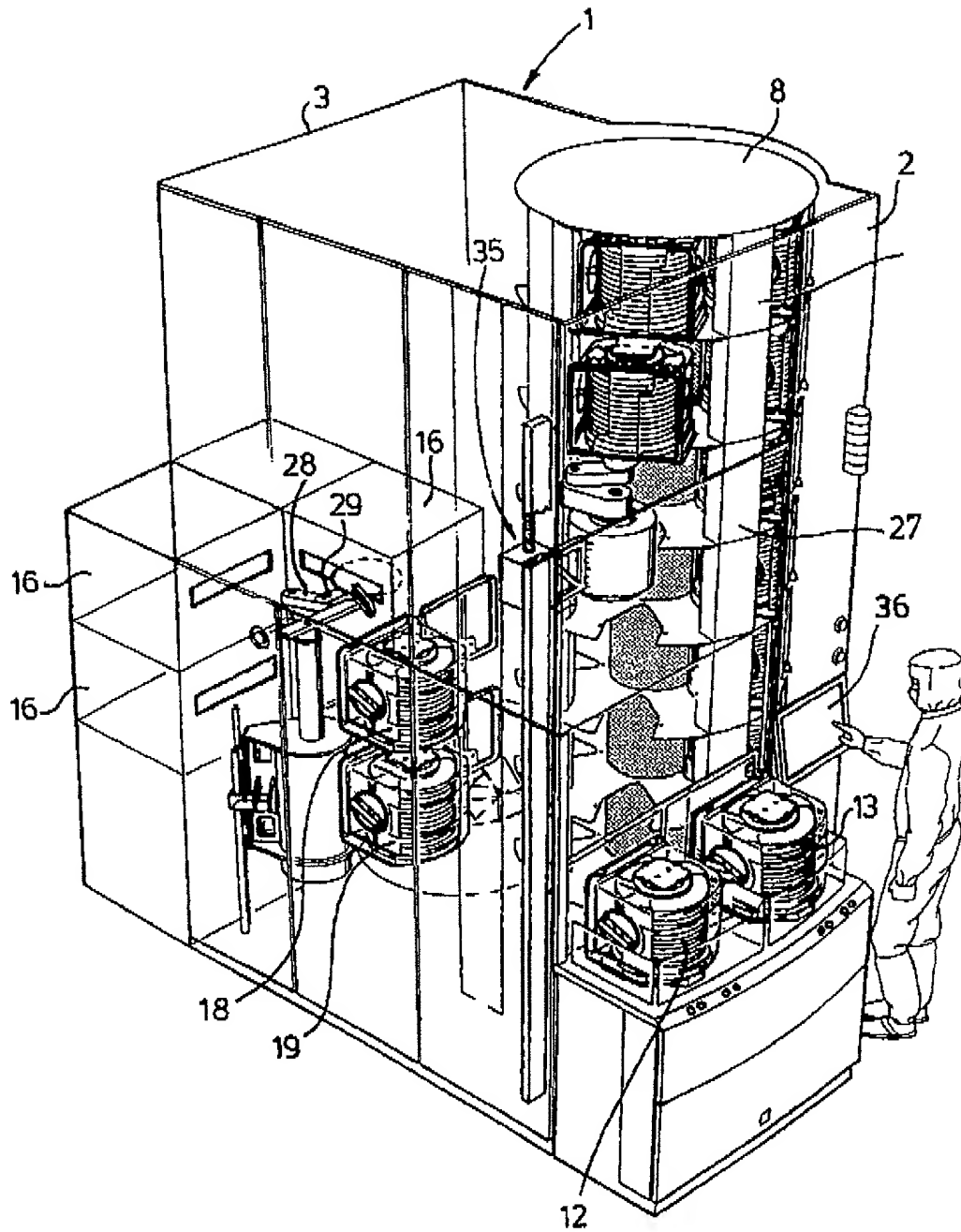
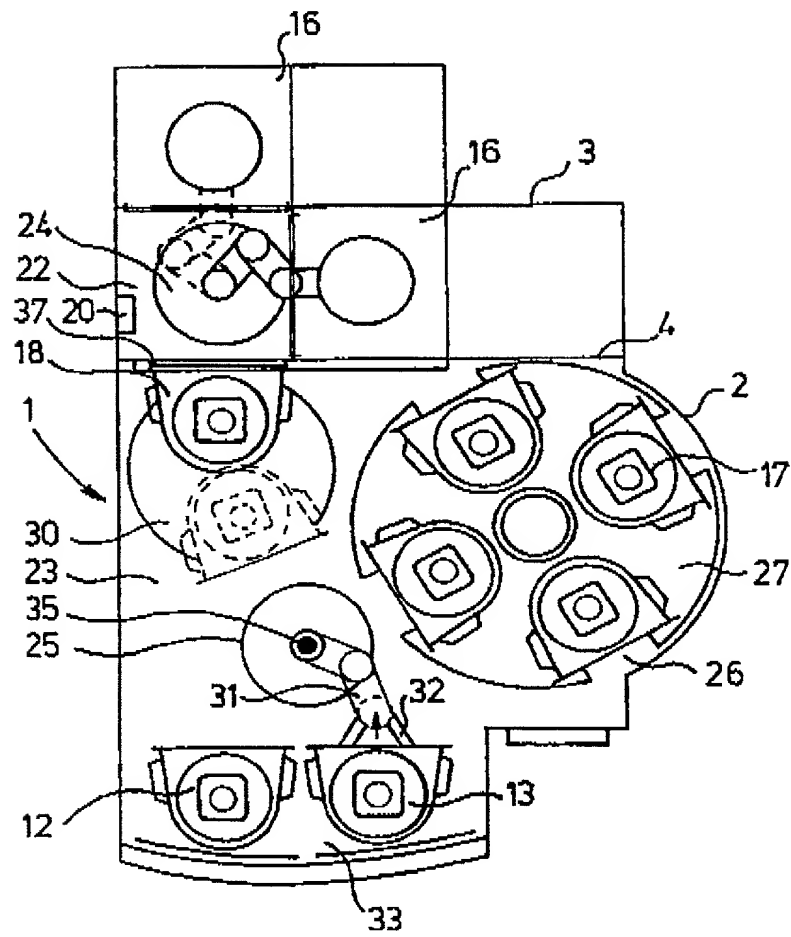


fig - 3



NEDER24.001APC

COMBINED DECLARATION AND POWER OF ATTORNEY**(ORIGINAL DESIGN, NATIONAL STAGE OF PCT OR CIP APPLICATION)**

As a below named inventor, I hereby declare that

My residence, post office address and citizenship are as stated below next to my name, I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Sorting/storage device for wafers and method for handling thereof

the specification of which: (complete (a), (b) or (c) for type of application)

REGULAR OR DESIGN APPLICATION

- a. ☐ is attached hereto.
b. ☐ was filed on _____ as Application
Serial No. _____ and was amended on _____
(if applicable)

PCT FILED APPLICATION ENTERING NATIONAL STAGE

- c. ☒ was described and claimed in International application No. PCT/NL99/00583 ✓
filed on 21 September 1999 ✓
and as amended on _____ (if any)

ACKNOWLEDGEMENT OF REVIEW OF PAPERS AND DUTY OF CANDOR

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, paragraph 1.56(a).

In compliance with this duty there is attached an information
disclosure statement 37 CFR 1.97

PRIORITY CLAIM

I hereby claim foreign priority benefits under Title 35, United States Code paragraph 119 of any foreign application (s) for patent of inventor's certificate listed below and have also identified below any foreign application for patent of inventor's certificate having a filing date before that of the application on which priority is claimed.

(complete (d) or (e))

- d. ☐ no such applications have been filed
 e. ☒ such applications have been filed as follows

**EARLIEST FOREIGN APPLICATION(S), IF ANY FILED WITHIN 12 MONTHS
 (6 MONTHS FOR DESIGN) PRIOR TO SAID APPLICATION**

Country	Application Number	Date of filing (day, month, year)	Date of Issue (day, month, year)	Priority claimed
The Netherlands	1010317 ✓	14 October 1998 ✓		Yes

**ALL FOREIGN APPLICATION(S), IF ANY FILED MORE THAN 12 MONTHS
 (6 MONTHS FOR DESIGN) PRIOR TO SAID APPLICATION**

CONTINUATION-IN-PART

(Complete this part only if this is a continuation-in-part application)

I hereby declare claim the benefit under Title 35, United States code, paragraph 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claim of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, paragraph 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, paragraph 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.) (Filing date) (Status) (patented, pending, abandoned)

(Application Serial No.) (Filing date) (Status) (patented, pending, abandoned)

POWER OF ATTORNEY

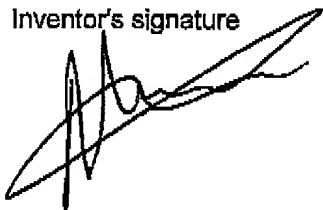
The undersigned hereby appoints the registrants of Knobbe, Martens, Olson & Bear, LLP, 620 Newport Center Drive, Sixteenth Floor, Newport Beach, California 92660, Telephone (949) 760-0404, CUSTOMER No. 20,995 as its attorneys with full power of substitution to prosecute this application and to transact all business in the U.S. Patent and Trademark Office connected herewith. This appointment is to be to the exclusion of the Inventor(s) and his attorney(s) in accordance with the provisions of 37 C.F.R. § 3.71.

Please use Customer No. 20,995 for all communications.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that wilful false statements and the like so made are punishable by fine or imprisonment, or both under Section 1001 of Title 18 of the United States Code and that such wilful false statements may jeopardize the validity of the application or any patent issued thereon.

1-00 Full name of sole or first inventor: HASPER, Albert

Inventor's signature



Date 4 April 2001


Country of Citizenship: The Netherlands ✓

Residence: MEPPEL, The Netherlands ✓

Post Office Address: Prinses Beatrix Plantsoen 9, NL-7941 EV MEPPEL, The Netherlands

2-00 Full name of second inventor: NOOTEN, Sebastiaan Eliza

Inventor's signature



Date 4 April 2001

Country of Citizenship: The Netherlands ✓

Residence: BILTHOVEN, The Netherlands ✓

Post Office Address: Bosuillaan 303, NL-3722 XM BILTHOVEN, The Netherlands

3-00 Full name of third inventor: HENDRIKS, Menso

Inventor's signature



Date 4 April 2001

Country of Citizenship: The Netherlands ✓

Residence: SOEST, The Netherlands ✓

Post Office Address: I. Menkolaan 71, NL-3761 XK SOEST, The Netherlands

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